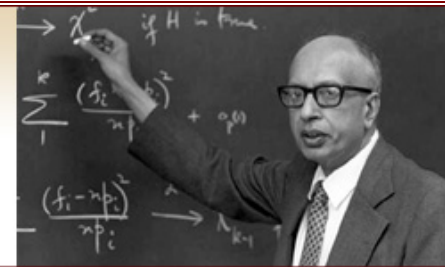# BAHADUR MEMORIAL LECTURES

In honor of Raj Bahadur's fundamental contributions to statistics and to our department.

The University of Chicago, Department of Statistics, presents the

Fifteenth Annual Bahadur Memorial Lectures

Susan A. Murphy

H. E. Robbins Professor of Statistics
University of Michigan, Ann Arbor

Wednesday, April 2, 2014
4:00 PM, Eckhart 133, 5734 South University Avenue

"Machine Learning Methods for Individualizing Just in Time Adaptive Interventions"

Mobile devices are being increasingly used by health researchers to collect symptoms and other information and to provide interventions in real time. These "Just in Time Adaptive Interventions" specify how patient information should be used to determine whether, when and which intervention to provide. We present generalizations of methods from the field of Reinforcement Learning for optimizing just in time adaptive interventions. We discuss how that these methods are related to updated and improved stochastic approximation algorithms used in robotics, online games and online advertising.

Thursday, April 3, 2014
4:00 PM, Eckhart 133, 5734 South University Avenue

"Getting SMART about Adapting Interventions"

Imagine you are a child with ADHD. Wouldn't you like your doctors to periodically adapt your treatment to your unique–and ever-changing–condition? And wouldn't you be excited to learn that an algorithm used to analyze your medical data was originally developed for applications in robotics and artificial intelligence? This lecture will explain how a randomized clinical trial design (Sequential Multiple Assignment Randomized Trial or SMART) is being used to develop adaptive interventions–protocols that systematize sequential decision-making that is key to effective treatment of health problems. Examples include a study of children with ADHD and an ongoing study to improve care at mental health clinics.